

# ***FAA FLIGHT TEST RISK MANAGEMENT PROCESS***

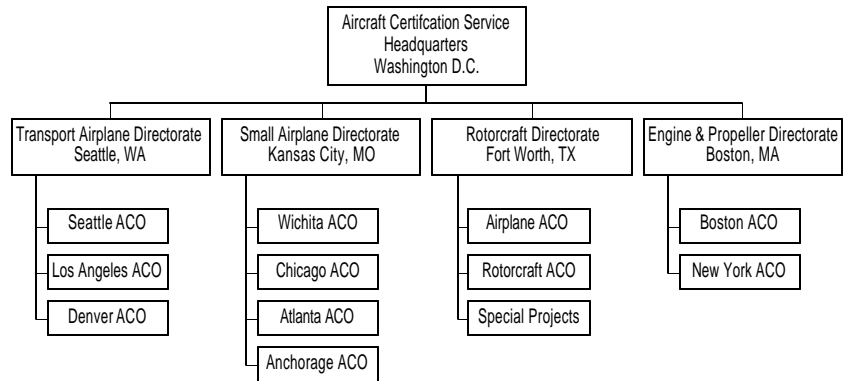


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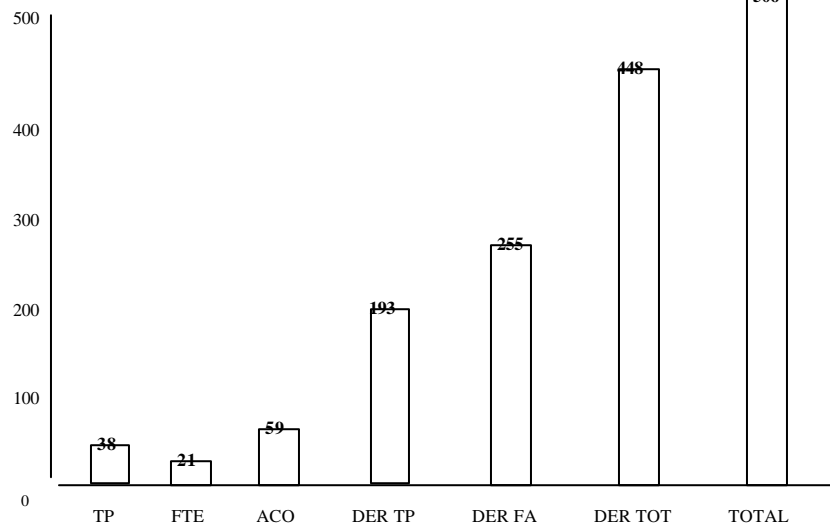
## ***OUTLINE***

- **Background**
- **FAA Flight Test Process**
- **Risk Management Requirement**
- **AIR Flight Test Incidents**
- **Common Threads from incidents**
- **On-going Activities**
- **Conclusion**

## AIRCRAFT CERTIFICATION SERVICE



## ***FAA FLIGHT TEST POPULATION***



## ***FAA FLIGHT TEST PROCESS (GENERAL)***

- **Applicant performs all R&D until aircraft is ready for certification**
- **FAA may :**
  - **Re-fly some or all tests**
  - **Delegate some tests to DERs**
  - **Perform tests concurrent with applicant**
  - **Accept company testing**

## ***FAA FLIGHT TEST PROCESS (INTERNAL)***

- **Applicant data reviewed by engineering**
- **When ready for flight test , a Type Inspection Authorization (TIA) is issued**
- **TIA is the approval document for FAA flight tests**
- **TIA contains :**
  - **Part I - Conformity and other inspections**
  - **Part II - Flight test requirements**

## ***PAST FLIGHT TEST SAFETY PROCESS***

- **No formal process in place**
- **No Flight / Test Safety Officers identified**
- **Test safety dependent on individual test pilot/FTE experience or “company” processes**
- **Risk assessment / management frequently done real time**
- **No collection / distribution of lessons learned**

## ***WINDS OF CHANGE***

- **AIR Flight Program separated from Flight Standards in FY 97**
- **Flight Program Oversight Committee ( FPOC ) formed to advise headquarters in Flight Program Management**
- **Flight Program Management needed a “ Flight Safety Program”**
  - **Drafted FAA Order to implement program**
  - **Found opportunity to implement a “Risk Management Process ( Test Safety )”**
  - **Coincident FAA flight test fatal accident reinforced need for “Test Safety Process” in AIR**

## ***AIR FLIGHT SAFETY PROGRAM***

- **FAA Order 4040.26**
- **Flight Test Crew Resource Management (CRM ) course conducted at the National Test Pilot School (NTPS )**
- **Safety In Flight Test Course ( SIFT ) at NTPS**
  - **Designed for flight test crews and their managers**
  - **To institutionalize “Test Safety” principles in AIR**
  - **Captures flight test “lessons learned”**

## ***FAA ORDER 4040.26 ESTABLISHES***

- **AIR Flight Safety Officers (FSO)**
- **Need for Regional Flight Safety Programs**
- **Requirement for Flight Test Risk Management Process**
- **FAA Flight Test Briefing Guide**
- **Collection of lessons learned**
- **Accident Response Plan**

## ***AIR RISK MANAGEMENT PROCESS***

- Risk Assessment required for all tests
  - ACO internal process, or
  - Part of existing / acceptable company process
- TIA signature authority ( Risk Assessment) raised to appropriate level
- Use of the FAA Flight Test Briefing Guide

## ***AIR FLIGHT TEST INCIDENT REPORT CRITERIA***

- Unexpected increase in risk level
- Unexpected test result (safety related)
- Damage to aircraft outside of expectations (brake tests)
- Anytime a lesson could be shared

## ***AIR INCIDENT SUMMARY***

DATE	TYPE	DESCRIPTION	REMARKS
1959	Transport	Hard landing, no flare	Incident
5/80	Transport	Fuselage broke in half on landing performance test	Accident
6/80	Transport	Ran off RWY and ground-looped on no hydraulics test	Incident
1986	Single Engine	Fatality during bailout from unrecoverable spin	Accident
1991	Seaplane	Inverted spin during aft c.g. stall test	SSE
UNK	Biz Jet	Aft c.g. stall test, departed controlled flight w/no spin chute	SSE
UNK	Biz jet	RWY performance tire failure	SSE
UNK	Small Helicopter	MIDO found large bolt wedged in flight controls	SSE
4 / 96	Pawnee	<b>Fatality during airspeed calibration test</b>	<b>Accident</b>
1997 (apprx)	Small Helicopter	Cabin step caution light inaccurate	SSE
1998 (?)	Large Helicopter	Main rotor fuselage strike during Vne throttle chop	SSE
2 / 99	Single Engine	Main gear door bent on simulated engine failure on T/O test	SSE
4 / 99	Ag Cat biplane	<b>Aircraft flipped over, nose first, on landing</b>	<b>Incident</b>
8 / 99	Large Helicopter	Tail rotor strike on landing during H-V test	SSE
8 / 99	Transport	<b>Tail strike on auto pilot go-around test</b>	<b>SSE</b>
10 / 99	Single Engine	Main gear door bent during Vd test	SSE
11 / 99	Medium Helicopter	Hard landing during HV test	SSE
1 / 00	Single Engine	<b>Rudder jammed during spin test</b>	<b>SSE</b>
6 / 00	Single Engine	Improper Ballast causing aft c.g.	SSE

## ***COMMON THREADS***

- **RUNWAY ENVIRONMENT / OBSTRUCTIONS**
- **LACK OF CONFIRMATION OF APPLICANT'S TEST PERFORMANCE**
- **PRE-TEST AIRWORTHINESS INSPECTION CRITERIA**

## ***ON-GOING ACTIVITIES***

- **Consolidation of a National Risk Management process**
- **Revision of order 4040.26 to include a national process**
- **Incorporation of the national process into the SIFT course**
- **Development of a safety web site**

## **Conclusion**

- **Order 4040.26 requires Flight Test Risk Management.**
- **Includes DER Flight Test personnel (expected to comply with FAA orders)**
- **A more defined National Process is coming (Order 4040.26A)**



**QUESTIONS?**